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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,810	10/15/2003	Donald E. Brodnick	066243-0223 (1286371T)	5125

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Joseph D. Kuborn
ANDRUS, SCEALES, STARKE & SAWALL
100 East Wisconsin Avenue
Suite 1100
Milwaukee, WI 53202

EXAMINER	
MANUEL, GEORGE C	
ART UNIT	**PAPER NUMBER**
3762	

MAIL DATE	DELIVERY MODE
05/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/685,810	BRODNICK ET AL.	
	Examiner	Art Unit	
	George Manuel	3762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35 and 42-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35 and 42-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-35 and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson et al (US 6,539,253).

Thompson et al disclose an implantable medical device comprising an IMD 100, that may comprise an ICD, hemodynamic monitor or cardiac pacemaker IPG 12. Both non-physiologic and physiologic data are transmitted by uplink radio frequency telemetry from the IMD to the external programmer or through the patient's body to another IMD.

Thompson et al further teach that while IMD sense amplifiers are capable of filtering to attenuate noise superimposed on a cardiac signal, in some situations the noise component may be such that the filters cannot adequately eliminate the noise.

As an example, Thompson et al discuss when a patient with an IMD walks through a metal detector, the resulting EMI signal may overwhelm the cardiac signal

picked up by the electrodes. Although the IMD may be able to determine that it is receiving an excessive amount of noise, the IMD may be unable to extract the true cardiac signal from the noise. Because the true cardiac electrical signal cannot be accurately ascertained, the IMD's operating system cannot determine when the vulnerable period of each cardiac cycle is occurring.

One of ordinary skill in the art would have found it obvious to configure the external programmer to detect a radio frequency artifact similar to that given by the metal detector because Thompson et al teach implantable cardiac pacemakers and ICDs have a pacing capability that allows them to function with a "reversion mode" of operation that will cause no harm to the patient when such an artifact is detected. Since the programmer bases programming characteristics on sensed electrogram data, one of ordinary skill would have found it readily apparent to eliminate an occurrence of a "revision mode" as being masked artifact to eliminate an occurrence of falsely identifying voltage artifact as a heart beat, or to identify heart beats that are paced and heart beats that are not paced and occurrences of pacing that fail to stimulate a heart beat.

One of ordinary skill in the art would have been further motivated to use the "revision mode" as an artifact indicator because the reversion mode does not provide the optimum pacing therapy that the patient may require at that very same time, and patient safety or comfort may be compromised. In the context of an ICD, the inability to distinguish high level EMI from a malignant tachyarrhythmia could either cause a

mistaken delivery of a cardioversion/defibrillation shock or inhibit delivery of a warranted cardioversion/defibrillation shock.

Regarding claims 7 and 15, Thompson et al teach programming commands or data are transmitted between the IPG RF telemetry antenna 28 within or on a surface of the IPG 12 and an external RF telemetry antenna 24 associated with the external programmer 26.

One of ordinary skill in the art would have found it obvious to integrate the antenna 24 into an ECG electrode because Thompson et al teach the external RF telemetry antenna 24 can be contained in a programmer RF head so that it can be located close to the patient's skin overlying the IPG 12. This location is typical for ECG electrode placement. Also, Thompson et al provide motivation for such a configuration by suggesting the patient 10 may be active and could be exercising on a treadmill or the like during an uplink telemetry interrogation of real time ECG or physiologic parameters.

Regarding claims 11-14 and 27-29, Thompson et al teach the use of low pass, band pass and high pass filters is desirable to pass desirable signals and to block or attenuate EMI. One of ordinary skill in the art would have found it obvious in view of this teaching to provide a tunable band pass filter that is either automatic or user configurable because these features have low power consumption. Thompson et al provides additional motivation by suggesting ideal EMI blocking filters employed in IMDs should be passive, low power consuming, and small in size.

Regarding claim 31, one of ordinary skill in the art would have found it obvious to sample the data streams 20 and 22 at a rate of about 18,000 to 150,000 samples per second to satisfy Nyquist criteria.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Manuel whose telephone number is (571) 272-4952.

George Manuel
Primary Examiner
Art Unit: 3762